Cell Culture Methods for Molecular and Cell Biology (4 Vols)

Vol. 1 Methods for Preparation of Media, Supplements, and Substrata for Serum-Free Animal Cell Culture
Vol. 2 Methods for Serum-Free Culture of Cells of the Endocrine System
Vol. 3 Methods for Serum-Free Culture of Epithelial and Fibroblastic Cells
Vol. 4 Methods for Serum-Free Culture of Neuronal and Lymphoid Cells

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Vol. 1 360 pages. £37.50; Vol. 2 256 pages. £30.00;
Vol. 3 292 pages. £38.00; Vol. 4 264 pages. £30.00

Cookery books, in some ways the erotica of the gustatory world in that they titillate with unfulfillable desires, are of two main types, the practical and the evangelical. The evangelical cook books are of great variety, though at the moment they mostly seem to stress the values of fibre and fruit. The four volumes reviewed here are cookery books of the missionary type. The mission is simply to convert us to the use of serum-free media. This is certainly a worthwhile aim in the simple terms of reducing expenditure on that ill-characterised fluid – serum. The biochemist-cook can amuse herself or himself with the thought that the other main commercial use of serum is to prepare commercial albumin for those snow-white bakery meringues.

Is the pursuit of serum-free culture media greater than mere commercial advantage? At first sight it must be, because if we can start with a chemically defined medium, we shall know exactly those components necessary for a particular type and extent of growth and we shall have a greater reproducibility in our experiments. If we embrace the meaning of every word in the last sentence, I believe that the aim is one of value because we shall, eventually, understand just how the cells feed. On the other hand, one oversimplification of the statement leads to remarks which imply that once we get a cell to grow in a fully defined medium, we know exactly what it is feeding upon and that it will be constant in its requirements and growth. The cell and its fellows and descendants will immediately set about metabolic modification of the medium and the environment by very many enzymic and secretory means.

I have described these four volumes as cookery books because they are exactly that: a series of recipes for the media on which to grow a wide variety of cells. The recipes are detailed and precise and on the whole written in a clear and logical fashion. They include a whole range of basic 'culture-cookery' methods including the preparation of suitable substrates for cell culture and also of a wide range of growth factors. Volume 1 covers three main areas: the preparation of basal nutrient media, the production of mitogenic peptides and the production and use of cell-attachment factors. Volume 2 gives a number of recipes for the culture of a wide-range of endocrine cells while Volume 3 devotes its text to the culture of epithelial cells, including carcinomas, as well as to fibroblastic cells. Volume 4 describes recipes for the culture of lymphoid cells and, according to the title, neuronal cells. In practice the neuronal cells mentioned turn out to be neuroblastomas, or 'funny' nerve cells like astrocytes, melanocytes or phaeochromocytoma cells.

When a biologist reads a real cookery-book, he